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EXAMINER	
SU, SARAH	

ART UNIT	PAPER NUMBER
2431	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/564,187	ITO ET AL.	
	Examiner	Art Unit	
	Sarah Su	2431	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,17-34 and 43-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *31-34* is/are allowed.

6)☒ Claim(s) *1,17-30 and 43-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 November 2010* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

FINAL ACTION

1. Amendment A, received on 10 November 2010, has been entered into record. In this amendment, claims 1, 17, 31, 33, 34, 43-48 have been amended, and claims 2-16, 35-42, 49, and 50 have been canceled.

2. Claims 1, 17-34, and 43-48 are presented for examination.

Response to Arguments

3. With regards to the objections to claims 1, 31-34, 36, 37, 39, and 43-49, the applicant has submitted amendments, and the examiner hereby withdraws the objections.

4. Applicant's arguments with respect to the rejection under 35 USC 101 of claims 1, 36-39, and 45-49 have been fully considered and are persuasive. The rejection of 10 August 2010 has been withdrawn.

5. Applicant's arguments with respect to claims 1, 17-30, and 43-48 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 230, 300 (Figure 6); 260, 300 (Figure 7).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement

drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1, 17-21, 28, 44, 45, 47, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa et al. (US Patent 5,787,179 and Ogawa hereinafter) in view of Seidel et al. (US 2001/0055290 A1 and Seidel hereinafter).

As to claim 1, Ogawa discloses a system and method for scrambling and descrambling of data with improved security, the system and method having:

a transmitter configured to generate and to transmit a signal including (col. 1, lines 41-44; col. 4, lines 32-34)

a physical layer header section (Packet Header, Figure 4)**;**

a data section (Packet Data, Figure 4)**;**

the transmitter configured to generate a scrambling initial value using at least a part of the physical layer header section, the transmitter configured to scramble the data section using the scrambling initial value, the transmitter configured to transmit the physical layer header (col. 2, lines 47-53; col. 8, lines 19-23, 43-47)**;**

a receiver configured to receive a signal from the transmitter, the receiver generating a descrambling initial value using at least a part of the physical layer header section, the receiver descrambling the data section using the descrambling initial value (col. 2, lines 47-53; col. 8, lines 19-23, 43-47)**.**

Ogawa fails to specifically disclose:

section using a first modulation method and a first encoding rate with a first signal to noise ratio, the transmitter configured to transmit the data section using a second modulation method and a second encoding rate with a second signal to noise ratio, the first signal to noise ratio being less than the second signal to noise ratio.

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Seidel.

Seidel discloses a system and method for packet data transmission, the system and method having:

> **section using a first modulation method and a first encoding rate with a first signal to noise ratio, the transmitter configured to transmit the data section using a second modulation method and a second encoding rate with a second signal to noise ratio, the first signal to noise ratio being less than the second signal to noise ratio** (0014, lines 1-10)**.**

Given the teaching of Seidel, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Seidel by using a lower encoding rate to encode the header than the data. Seidel recites motivation by disclosing that using a lower coding rate allows data in the header to be read even when the data is erroneous, therefore ensuring reliable transmission of the header (0014, lines 4-8). It is obvious that the teachings of Seidel would have improved the teachings of Ogawa by using a lower encoding rate to encode the header in order to ensure that the data in the header is reliably transmitted even if the rest of the transmitted data is corrupt.

As to claim 17, Ogawa discloses:

communication means for transmitting/receiving transmission data over a communication channel, the communication means generating and transmitting a signal including (col. 1, lines 41-44; col. 4, lines 32-34)**;**

a physical layer header section (Packet header, Figure 4)**;**

a data section including the transmission data (Packet data, Figure 4)**,**

scrambling/descrambling initial-value generating means for generating an initial value when scrambling or descrambling using at least a part of the physical layer header section (col. 8, lines 19-23, 43-47)**;**

scrambling/descrambling means for performing scrambling or descrambling of the data section using said initial value (col. 2, lines 47-53)**.**

Ogawa fails to specifically disclose:

the communication means transmitting the physical layer header section using a first modulation method and a first encoding rate with a first signal to noise ratio, the communication means transmitting the data section using a second modulation method and a second encoding rate with a second signal to noise ratio, the first signal to noise ratio being less than the second signal to noise ratio.

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Seidel.

Seidel discloses:

the communication means transmitting the physical layer header section using a first modulation method and a first encoding rate with a

first signal to noise ratio, the communication means transmitting the data section using a second modulation method and a second encoding rate with a second signal to noise ratio, the first signal to noise ratio being less than the second signal to noise ratio (0014, lines 1-10)**.**

Given the teaching of Seidel, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Seidel by using a lower encoding rate to encode the header than the data. Please refer to the motivation recited above with respect to claim 1 as to why it is obvious to apply the teachings of Seidel to the teachings of Ogawa.

As to claim 18, Ogawa discloses:

wherein said scrambling/descrambling means generate a transmission signal sequence scrambled by calculating an exclusive-OR operation between a scrambled sequence generated from a scrambling initial value and a transmission data sequence, or descramble a reception data sequence by calculating an exclusive-OR operation between a descrambled sequence generated from a descrambling initial value and a reception signal sequence scrambled (col. 3, lines 11-14, 20-23)**.**

As to claim 19, Ogawa discloses:

wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means take an n-bit sequence obtained by extracting n bits from a physical layer header section or a part thereof based on a rule common with an other party of communication, as said initial value when scrambling/descrambling (col. 10, lines 19-22, 30-34)**.**

As to claim 20, Ogawa discloses:

wherein said scrambling/descrambling initial-value generating means generate said initial value when scrambling/descrambling by extracting n bits including fields of which all bits are not zero (i.e. no PTS)**, of a physical layer header section** (col. 9, lines 38-41)**.**

As to claim 21, Ogawa discloses:

wherein said scrambling/descrambling initial-value generating means take a fixed n-bit sequence, which are not all zero bits, shared with an other party of communication as said initial value when scrambling/descrambling, in the event that n bits extracted from a physical layer header section are all zeroes (col. 9, lines 46-50)**.**

As to claim 28, Ogawa discloses:

wherein in the event that the number of logics "0" counted in said physical layer header section or a part thereof is zero, said scrambling/descrambling initial-value generating means take a fixed n-bit sequence, which are not all zero bits, shared with an other party of communication as said initial value when scrambling/descrambling (col. 9, lines 46-50)**.**

As to claims 44 and 47, Ogawa discloses:

receiving the reception packet over a communication channel using a receiver, the receiving including (col. 1, lines 41-44; col. 4, lines 32-34)

analyzing the physical layer header of the reception packet (col. 7, lines 16-22)**;**

setting the headmost data of said signal to be processed as an initial value in the internal state of said descrambler in the event that a normal value is set in a parity signal of said physical layer header as initial value setting information (col. 9, lines 31-35; col. 10, lines 30-34)**, and setting predetermined data included in said physical layer header other than said signal to be processed as the initial value in the internal state of said descrambler in the event that an abnormal value is set in the parity signal of said physical layer header as said initial value setting information** (col. 9, lines 46-53; col. 10, lines 30-34)**;**

subjecting said signal to be processed to said predetermined arithmetic operation according to the internal state of said descrambler, and outputting a processed reception packet (col. 3, lines 20-23)**.**

Ogawa fails to specifically disclose:

receiving a physical layer header section of the reception packet which was transmitted using a first modulation method and a first encoding rate with a first signal to noise ratio,

receiving a data section of the reception packet with was transmitted using a second modulation method and a second encoding rate with a second signal to noise ratio, the first signal to noise ratio being less than the second signal to noise ratio.

Nonetheless, these features are well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Seidel.

Seidel discloses:

receiving a physical layer header section of the reception packet which was transmitted using a first modulation method and a first encoding rate with a first signal to noise ratio (0014, lines 1-10)**,**

receiving a data section of the reception packet with was transmitted using a second modulation method and a second encoding rate with a second signal to noise ratio, the first signal to noise ratio being less than the second signal to noise ratio (0014, lines 1-10)**.**

Given the teaching of Seidel, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Seidel by using a lower encoding rate to encode the header than the data. Please refer to the motivation recited above with respect to claim 1 as to why it is obvious to apply the teachings of Seidel to the teachings of Ogawa.

As to claims 45 and 48, Ogawa discloses:

transmitting/receiving transmission data over a communication channel using a transmitter and a receiver, the transmitting including (col. 1, lines 41-44; col. 4, lines 32-34)

generating and transmitting a signal including (col. 1, lines 41-44; col. 4, lines 32-34)

a physical layer header section (Packet header, Figure 4)**;**

a data section including the transmission data (Packet data, Figure 4)**,**

generating an initial value when scrambling or descrambling using at least a part of the physical layer header section based on a rule common with an other party of communication (col. 10, lines 19-22, 30-34)**;**

performing scrambling or descrambling of the data section using said initial value (col. 2, lines 47-53)**.**

Ogawa fails to specifically disclose:

transmitting the physical layer header section using a first modulation method and a first encoding rate with a first signal to noise ratio,

transmitting the data section using a second modulation method and a second encoding rate with a second signal to noise ratio, the first signal to noise ratio being less than the second signal to noise ratio.

Nonetheless, these features are well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Seidel.

Seidel discloses:

transmitting the physical layer header section using a first modulation method and a first encoding rate with a first signal to noise ratio (0014, lines 1-10)**,**

transmitting the data section using a second modulation method and a second encoding rate with a second signal to noise ratio, the first signal to noise ratio being less than the second signal to noise ratio (0014, lines 1-10)**.**

Given the teaching of Seidel, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Seidel by using a lower encoding rate to encode the header than the data. Please refer to the motivation recited above with respect to claim 1 as to why it is obvious to apply the teachings of Seidel to the teachings of Ogawa.

9. Claims 22-27, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa in view of Seidel as applied to claim 17 above, and further in view of Billhartz et al. (US 2003/0210788 A1 and Billhartz hereinafter).

As to claim 22, Ogawa in view of Seidel fails to specifically disclose:

> **wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means extract (n-k) bits from a physical layer header section or a part thereof based on a rule common with an other party of communication (wherein k is a natural number smaller than n), and insert a k-bit sequence such that at least 1 bit thereof includes logic "1", shared with the other party of communication in the extracted bit sequence of said (n-k) bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa in view of Seidel, as taught by Billhartz.

Billhartz discloses a system and method for secure wireless local or metropolitan area network, the system and method having:

> **wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural**

number), said scrambling/descrambling initial-value generating means extract (n-k) bits from a physical layer header section or a part thereof based on a rule common with an other party of communication (i.e. random IV) **(wherein k is a natural number smaller than n), and insert a k-bit sequence such that at least 1 bit thereof includes logic "1", shared with the other party of communication in the extracted bit sequence** (i.e. seed) **of said (n-k) bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling** (0035, lines 1-9; 0039, lines 1-6)**.**

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa in view of Seidel with the teachings of Billhartz by padding bits with a sequence. Billhartz recites motivation by disclosing that concatenating the seed and the random IV generates a sequence of a certain size, which may provide further protection against a decryption dictionary attack (0014, lines 4-7). It is obvious that the teachings of Billhartz would have improved the teachings of Ogawa in view of Seidel by padding bits with a sequence in order to provide a longer sequence for further protection against attacks.

As to claim 23, Ogawa in view of Seidel fails to specifically disclose:

wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural

number), said scrambling/descrambling initial-value generating means count the number of logics "1" in said physical layer header section or a part thereof, represent the number thereof with n bits in binary, and take this as said initial value when scrambling/descrambling.

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa in view of Seidel, as taught by Billhartz.

Billhartz discloses:

wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" in said physical layer header section or a part thereof, represent the number thereof with n bits in binary, and take this as said initial value when scrambling/descrambling (0031, lines 2-8)**.**

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa in view of Seidel with the teachings of Billhartz by generating an initial value based on counting logics. Billhartz recites motivation by disclosing that it may be cumbersome to continuously generate and/or distribute temporary or session keys to different nodes (0009, lines 1-4), and that using various IV generators such as counters may be used to generate key sequences (0031, lines 4-8). It is obvious that the teachings of Billhartz would have improved the teachings of Ogawa in view of Seidel

by generating values based on counting in order to provide key sequences without needing to continuously generate and distribute the sequences.

As to claim 24, Ogawa discloses:

> **wherein in the event that the number of logics "1" counted in said physical layer header section or a part thereof is zero, said scrambling/descrambling initial-value generating means take a fixed n-bit sequence, which are not all zero bits, shared with an other party of communication as said initial value when scrambling/descrambling** (col. 9, lines 46-50)**.**

As to claim 25, Ogawa in view of Seidel fails to specifically disclose:

> **wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" in said physical layer header section or a part thereof, represent the number thereof with (n-m) bits in binary (wherein m is a natural number smaller than n), and insert an m-bit sequence such that at least 1 bit thereof includes logic "1", shared with an other party of communication in the extracted bit sequence of said (n-m) bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa in view of Seidel, as taught by Billhartz.

Billhartz discloses:

> **wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" in said physical layer header section or a part thereof, represent the number thereof with (n-m) bits in binary (wherein m is a natural number smaller than n), and insert an m-bit sequence such that at least 1 bit thereof includes logic "1", shared with an other party of communication in the extracted bit sequence of said (n-m) bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling** (0031, lines 2-8; 0035, lines 1-9; 0039, lines 1-6)**.**

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa in view of Seidel with the teachings of Billhartz by generating a value by counting logics and padding bits with a sequence. Please refer to the motivation recited above with respect to claims 22 and 23 as to why it is obvious to apply the teachings of Billhartz to the teachings of Ogawa in view of Seidel.

As to claim 26, Ogawa in view of Seidel fails to specifically disclose:

> **in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" in said physical layer header section or a part thereof, add x shared with an other party of communication (wherein x is a natural number smaller than 2n) to the number thereof, represent the result with n bits in binary, and take this bit sequence as said initial value when scrambling/descrambling.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa in view of Seidel, as taught by Billhartz.

Billhartz discloses:

> **in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" in said physical layer header section or a part thereof, add x shared with an other party of communication (wherein x is a natural number smaller than 2n) to the number thereof, represent the result with n bits in binary, and take this bit sequence as said initial value when scrambling/descrambling** (0031, lines 2-8; 0035, lines 1-9)**.**

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa in view of Seidel with the teachings of Billhartz by generating a value by counting logics and adding a shared number. Please refer to the teachings recited above with respect to claims 22 and 23 as to why it is obvious to apply the teachings of Billhartz to the teachings of Ogawa in view of Seidel.

As to claim 27, Ogawa in view of Seidel fails to specifically disclose:

> **wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "0" in said physical layer header section or a part thereof, represent the number thereof with n bits in binary, and take this as said initial value when scrambling/descrambling.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa in view of Seidel, as taught by Billhartz.

Billhartz discloses:

> **wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "0" in said physical layer header section or a**

part thereof, represent the number thereof with n bits in binary, and take this as said initial value when scrambling/descrambling (0031, lines 2-8)**.**

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa in view of Seidel with the teachings of Billhartz by generating a value by counting logics. Please refer to the motivation recited above with respect to claim 23 as to why it is obvious to apply the teachings of Billhartz to the teachings of Ogawa in view of Seidel.

As to claim 29, Ogawa in view of Seidel fails to specifically disclose:

wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "0" in said physical layer header section or a part thereof, represent the number thereof with (n-m) bits in binary (wherein h is a natural number smaller than n), insert an h-bit sequence such that at least one bit thereof is logic "1", shared with an other party of communication in the extracted bit sequence of said (n-h) bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling.

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa in view of Seidel, as taught by Billhartz.

Billhartz discloses:

> **wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "0" in said physical layer header section or a part thereof, represent the number thereof with (n-m) bits in binary (wherein h is a natural number smaller than n), insert an h-bit sequence such that at least one bit thereof is logic "1", shared with an other party of communication in the extracted bit sequence of said (n-h) bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling** (0031, lines 2-8; 0035, lines 1-9; 0039, lines 1-6)**.**

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa in view of Seidel with the teachings of Billhartz by generating a value by counting logics and padding bits with a sequence. Please refer to the motivation recited above with respect to claims 22 and 23 as to why it is obvious to apply the teachings of Billhartz to the teachings of Ogawa in view of Seidel.

As to claim 30, Ogawa in view of Seidel fails to specifically disclose:

> **wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "0" in said physical layer header section or a part thereof, add y shared with an other party of communication (wherein y is a natural number smaller than 2n) to the number thereof, represent the result with n bits in binary, and take this bit sequence as said initial value when scrambling/descrambling.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa in view of Seidel, as taught by Billhartz.

Billhartz discloses:

> **wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "0" in said physical layer header section or a part thereof, add y shared with an other party of communication (wherein y is a natural number smaller than 2n) to the number thereof, represent the result with n bits in binary, and take this bit sequence as said initial value when scrambling/descrambling** (0031, lines 2-8; 0035, lines 1-9)**.**

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa in view of Seidel with the teachings of Billhartz by generating a value by counting logics and adding a number. Please refer to the motivation recited above with respect to claims 22 and 23 as to why it is obvious to apply the teachings of Billhartz to the teachings of Ogawa in view of Seidel.

10. Claims 43 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa in view of Seidel and further in view of Akiyama et al. (US Patent 6,460,137 B1 and Akiyama hereinafter).

As to claims 43 and 46, Ogawa discloses:

generating a physical layer header of a transmission packet (col. 4, line 67; col. 5, lines 1-3, 66-67; col. 6, lines 1-5, 37-41);

setting predetermined data included in said physical layer header as an initial value in the internal state of said scrambler, in the event of indicating that an initial value should be set in said internal state (col. 8, lines 19-23, 43-47);

subjecting a signal to be processed in said transmission packet to a predetermined arithmetic operation according to the internal state of said scrambler, and outputting a processed transmission packet (col. 3, lines 10-13);

transmitting the processed transmission packet over a communication channel using a transmitter, the transmitting including (col. 1, lines 41-44; col. 4, lines 32-34).

Ogawa fails to specifically disclose:

inverting a parity signal in said physical layer header;

transmitting the physical layer header section using a first modulation method and a first encoding rate with a first signal to noise ratio,

transmitting the data section using a second modulation method and a second encoding rate with a second signal to noise ratio, the first signal to noise ratio being less than the second signal to noise ratio.

Nonetheless, these features are well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Seidel.

Seidel discloses:

transmitting the physical layer header section using a first modulation method and a first encoding rate with a first signal to noise ratio (0014, lines 1-10)**,**

transmitting the data section using a second modulation method and a second encoding rate with a second signal to noise ratio, the first signal to noise ratio being less than the second signal to noise ratio (0014, lines 1-10)**.**

Given the teaching of Seidel, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Seidel by using a lower encoding rate to encode the header than the data. Please refer to the motivation recited above with respect to claim 1 as to why it is obvious to apply the teachings of Seidel to the teachings of Ogawa.

Ogawa in view of Seidel fails to specifically disclose:

inverting a parity signal in said physical layer header.

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa in view of Seidel, as taught by Akiyama.

Akiyama discloses a system and method for encryption processing, the system and method having:

inverting a parity signal in said physical layer header (col. 8, lines 49-51).

Given the teaching of Akiyama, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa in view of Seidel with the teachings of Akiyama by inverting a signal. Akiyama recites motivation by disclosing that a logic value is inverted in accordance with the encrypted data, and than re-inverted when the data is restored to plaintext, thus indicating if the data is encrypted (col. 10, lines 54-63). It is obvious that

the teachings of Akiyama would have improved the teachings of Ogawa in view of Seidel by inverting a signal in the header in order to provide an indication of whether the data is encrypted or not.

Allowable Subject Matter

11. Claims 31-34 are allowed.

12. The following is an examiner's statement of reasons for allowance:

Claim 31 discloses of "wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" and the number of logics "0" in said physical layer header section or a part thereof respectively, and represent the absolute value of the difference thereof with n bits in binary, and take this as said initial value when scrambling/descrambling." This feature, in combination with the other limitations in the claims, is not anticipated by, nor made obvious over, the prior art of record.

Claim 33 discloses of "wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" and the number of logics "0" in said physical layer header section or a part thereof respectively, represent the absolute value of the difference thereof with (n-i) bits in binary, insert an i-bit sequence such that at least one bit thereof is logic "1", shared with an other party of communication in the extracted bit sequence of said (n-i) bits in a

pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling." This feature, in combination with the other limitations in the claims, is not anticipated by, nor made obvious over, the prior art of record.

Claim 34 discloses of "wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" and the number of logics "0" in said physical layer header section or a part thereof respectively, obtain the absolute value of the difference thereof, add z shared with an other party of communication (wherein z is a natural number smaller than 2n) to the absolute value, represent the result with z bits in binary, and take this bit sequence as said initial value when scrambling/descrambling." This feature, in combination with the other limitations in the claims, is not anticipated by, nor made obvious over, the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Prior Art Made of Record

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Anslow et al. (US Patent 6,980,737 B1) discloses a system and method for measuring optical transmission characteristics in photonic networks.

b. Becker et al. (US 2010/0159861 A1) discloses a system and method for delta-theta frequency estimation.

c. Itakura et al. (US 2003/0118107 A1) discloses a system and method for data transfer with appropriate packet processing.

d. Iwami et al. (US 2006/0165024 A1) discloses a system and method for transmitting and receiving over a wireless system.

e. Lee et al. (US 2009/0068953 A1) discloses a system and method for minimizing co-channel interference.

f. Liu et al. (US 2010/0061489 A1) discloses a system and method for using a multiple-antenna receiver.

g. Thesling et al. (US 2009/0028275 A1) discloses a system and method for frame-based carrier frequency and phase recovery.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Su whose telephone number is (571) 270-3835. The examiner can normally be reached on Monday through Friday 7:30AM-5:00PM EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William R. Korzuch/
Supervisory Patent Examiner, Art Unit 2431

/Sarah Su/
Examiner, Art Unit 2431